

Listing of The Claims

Please cancel claims 1-50.

51. (Currently Amended) A method for MRI imaging comprising:
administering to a patient an MRI contrast agent, comprising a perfluoroalkyl-containing metal complex that has a critical micelle formation concentration $< 10^{-3}$ mol/l, a hydrodynamic micelle diameter ($2 R_h$) > 1 nm and a proton relaxivity in plasma (R^1) > 10 l/mmol's ,

allowing the uptake of contrast agent in tissue ,

conducting MRI imaging,

and visualizing whereby plaque in which contrast agent is uptaken, infarcted tissue, or necrotic tissue are visualized

or

independently simultaneously visualizing necroses and tumors in which contrast agent is uptaken are independently visualized.

52. (Canceled)

53. (Previously Presented) A method according to claim 51, wherein necroses or tumors are independently visualized.

54. (Previously Presented) A method according to claim 51, wherein the metal complex has a micelle formation concentration of $< 10^{-4}$ mol/l.

55. **(Previously Presented)** A method according to claim 51, wherein the metal complex has a hydrodynamic micelle diameter of > 3 nm.

56. **(Previously Presented)** A method according to claim 51, wherein the metal complex has a proton relaxivity in plasma of > 13 l/mmol's.

57. **(Currently amended)** A method according to claim 51, wherein the perfluoroalkyl-containing metal complex is a compound of formula I

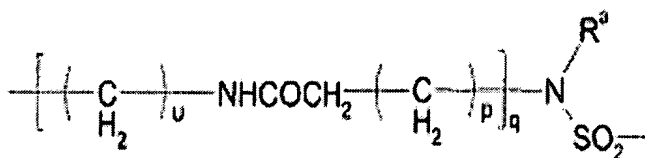


in which

R^F is a perfluorinated, straight-chain or branched carbon chain with formula - $C_nF_{2n}E$, in which

E is a terminal fluorine, chlorine, bromine, iodine or hydrogen atom and
 n is a number from 4-30,

L is a direct bond, a methylene group, an -NHCO- group, a group



whereby p is a number from 0 to 10, and q and n , independently of one another, are 0 or 1, and R^a is a hydrogen atom, a methyl group, a -CH2-OH group, a -CH2-CO2H group or a C_2 - C_{15} alkyl, which optionally is interrupted by 1 to 3 oxygen atoms, 1 to 2 CO groups or an optionally substituted aryl group and/or is substituted with 1 to 4 hydroxyl groups, 1 to 2

C₁-C₄ alkoxy groups, 1 to 2 carboxy groups, or a group -SO₃H,

or

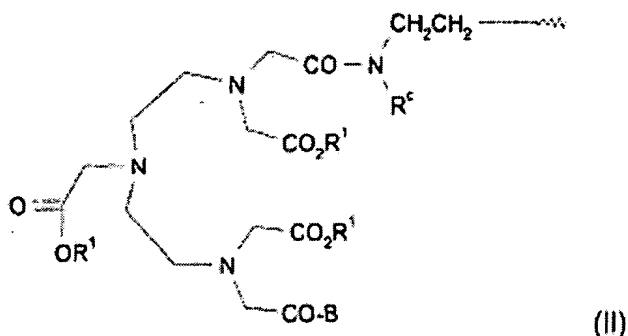
L is a straight-chain, branched, saturated or unsaturated C₂-C₃₀ carbon chain, which optionally contains 1 to 10 oxygen atoms, 1 to 3 -NR^a groups, 1 to 2 sulfur atoms, a piperazine group, a -CONR^a group, an -NR^aCO group, an -SO₂ group, an -NR^a-CO₂ group, 1 to 2 CO groups, a group -CO-N-T-N(R^a)-SO₂-R^F, or 1 to 2 optionally substituted aryls and/or is interrupted by these groups and/or is optionally substituted with 1 to 3 -OR^a groups, 1 to 2 oxo groups, 1 to 2 -NH-COR^a groups, 1 to 2 -CONHR^a groups, 1 to 2 -(CH₂)_p-CO₂H groups, 1 to 2 groups -(CH₂)_p-(O)_q-CH₂CH₂-R^F,

whereby

R^a, R^F and p and q have the above-indicated meanings, and

T is a C₂-C₁₀ chain, which optionally is interrupted by 1 to 2 oxygen atoms or 1 to 2 -NHCO groups,

K is a complexing agent or metal complex of formula II



in which R^c, R¹ and B are independent of one another,

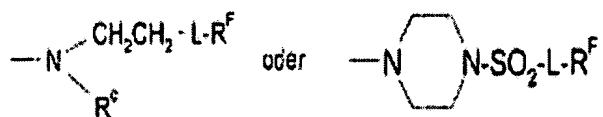
and

R^c is R^a or is -(CH₂)_m-L-R^F, whereby m is 0, 1 or 2, and L and R^F have the above-mentioned meaning,

R¹, independently of one another, is a hydrogen atom or a metal ion equivalent

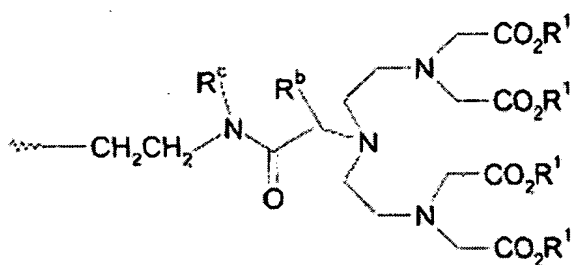
of atomic numbers 22-29, 42-46 or 58-70,

B is $-OR^1$,



whereby R^1 , L, R^F and R^c have the above-mentioned meanings, or

K is a complexing agent or complex of formula III

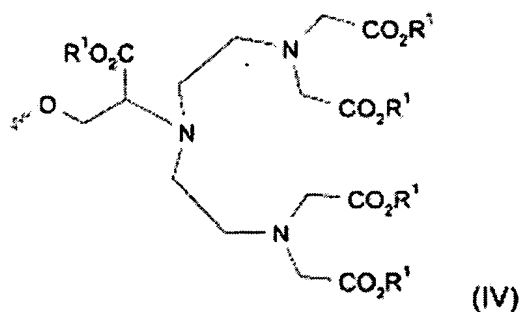


(III)

in which R^c and R^1 have the above-mentioned meanings and R^b has the meaning of R^a

or

K is a complexing agent or complex of formula IV

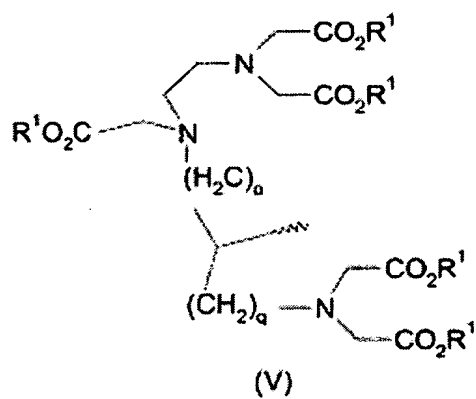


(IV)

in which R^1 has the above-mentioned meaning

or

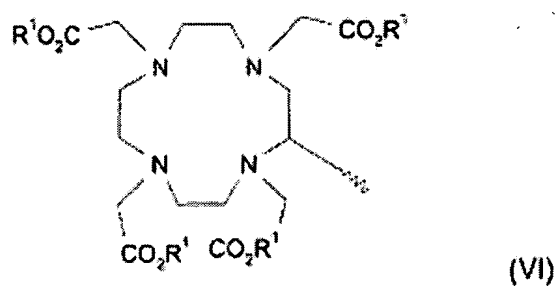
K is a complexing agent or complex of formula V



in which R^1 has the above-mentioned meaning, and o and q stand for numbers 0 or 1, and yields the sum $o + q = 1$,

or

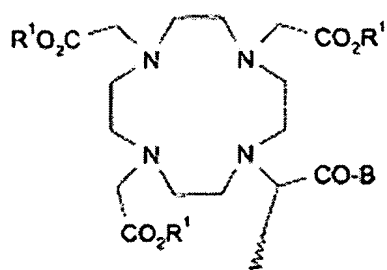
K is a complexing agent or complex of formula VI



in which R^1 has the above-mentioned meaning

or

K is a complexing agent or complex of formula VII

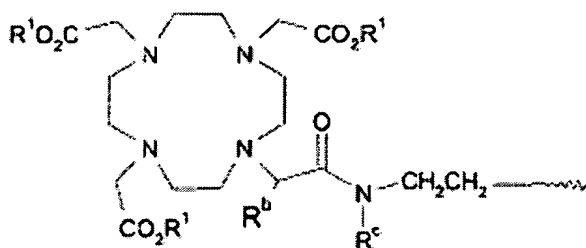


(VII)

in which R^1 and B have the above-mentioned meanings

or

K is a complexing agent or complex of formula VIII

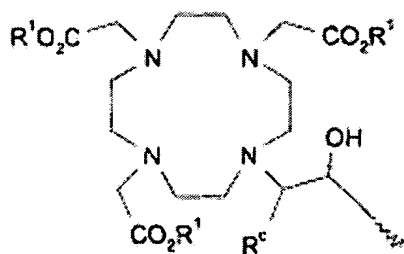


(VIII)

in which R^c and R^1 have the above-mentioned meanings, and R^b is R^a

or

K is a complexing agent or complex of formula IX

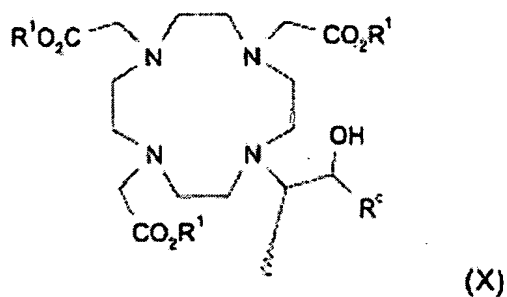


(IX)

in which R^c and R^1 have the above-mentioned meanings,

or

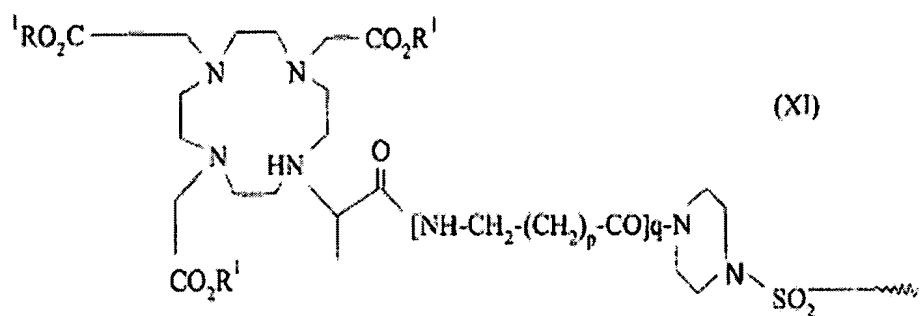
K is a complexing agent or complex of formula X



in which R^c and R^1 have the above-mentioned meanings,

or

K is a complexing agent or complex of formula XI

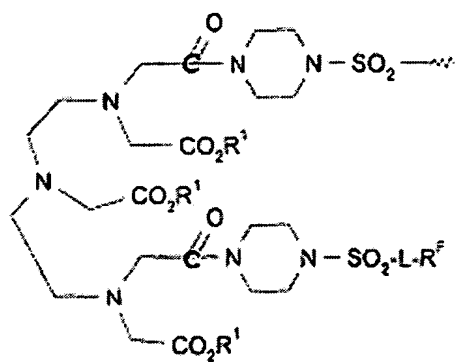


in which R^1 , p and q have the above-mentioned meanings,

and R^b has the meaning of R^a ,

or

K is a complexing agent or complex of formula XII

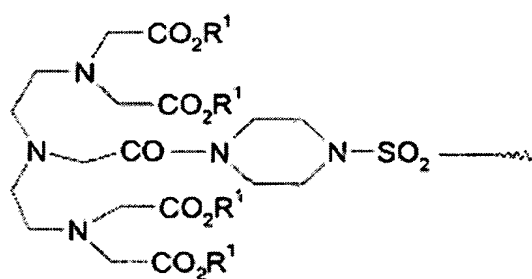


(XII)

in which L, R^F and Z^1 have the above-mentioned meanings,

or

K is a complexing agent or complex of formula XIII



(XIII)

in which R^1 has the above-mentioned meaning, or

K is a salt of one of the complexing agents or complexes of formula II to XIII with an organic and/or inorganic base or amino acid or amino acid amide.

58. **(Previously Presented)** A method according to claim 57, wherein in the compound of formula I,

L is

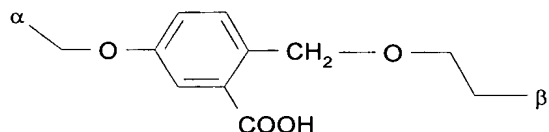
$\alpha\text{-CH}_2\text{-}\beta$

$\alpha\text{-CH}_2\text{CH}_2\text{-}\beta$

$\alpha\text{-(CH}_2\text{)}_s\text{-}\beta$ $s = 3 - 15$

$\alpha\text{-CH}_2\text{-O-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-(O-CH}_2\text{-CH}_2\text{)}_t\text{-}\beta \quad t = 2 - 6$
 $\alpha\text{-CH}_2\text{-NH-CO-}\beta$
 $\alpha\text{-CH}_2\text{-NH-CO-CH}_2\text{-N(CH}_2\text{COOH)-SO}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-NH-CO-CH}_2\text{-N(C}_2\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-NH-CO-CH}_2\text{-N(C}_{10}\text{H}_{21}\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-NH-CO-CH}_2\text{-N(C}_6\text{H}_{13}\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-NH-CO-(CH}_2\text{)}_{10}\text{-N(C}_2\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-NH-CO-CH}_2\text{-N(-CH}_2\text{-C}_6\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-NH-CO-CH}_2\text{-N(-CH}_2\text{-CH}_2\text{-OH)-SO}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-NHCO-(CH}_2\text{)}_{10}\text{-S-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{NHCOCH}_2\text{-O-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{NHCO(CH}_2\text{)}_{10}\text{-O-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-C}_6\text{H}_4\text{-O-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-O-CH}_2\text{-C(CH}_2\text{-OCH}_2\text{CH}_2\text{-C}_6\text{F}_{13}\text{)}_2\text{-CH}_2\text{-OCH}_2\text{-CH}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-NHCOCH}_2\text{CH}_2\text{CON-CH}_2\text{CH}_2\text{NHCOCH}_2\text{N(C}_2\text{H}_5\text{)SO}_2\text{C}_8\text{F}_{17}$

$\text{CH}_2\text{-CH}_2\text{NHCOCH}_2\text{N(C}_2\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-O-CH}_2\text{-CH(OC}_{10}\text{H}_{21}\text{)-CH}_2\text{-O-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-(CH}_2\text{NHCO)}_4\text{-CH}_2\text{O-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-(CH}_2\text{NHCO)}_3\text{-CH}_2\text{O-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-OCH}_2\text{C(CH}_2\text{OH)}_2\text{-CH}_2\text{-O-CH}_2\text{CH}_2\text{-}\beta$



$\alpha\text{-CH}_2\text{NHCOCH}_2\text{N(C}_6\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-NHCO-CH}_2\text{-CH}_2\text{-}\beta$
 $\alpha\text{-NHCO-CH}_2\text{-O-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-NH-CO-}\beta$
 $\alpha\text{-NH-CO-CH}_2\text{-N(CH}_2\text{COOH)-SO}_2\text{-}\beta$
 $\alpha\text{-NH-CO-CH}_2\text{-N(C}_2\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-NH-CO-CH}_2\text{-N(C}_{10}\text{H}_{21}\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-NH-CO-CH}_2\text{-N(C}_6\text{H}_{13}\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-NH-CO-(CH}_2\text{)}_{10}\text{-N(C}_2\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-NH-CO-CH}_2\text{-N(-CH}_2\text{-C}_6\text{H}_5\text{)-SO}_2\text{-}\beta$

α -NH-CO-CH₂-N(-CH₂-CH₂-OH)SO₂- β
 α -NH-CO-CH₂- β
 α -CH₂-O-C₆H₄-O-CH₂-CH₂- β
 α -CH₂-C₆H₄-O-CH₂-CH₂- β
 α -N(C₂H₅)-SO₂- β
 α -N(C₆H₅)-SO₂- β
 α -N(C₁₀H₂₁)-SO₂- β
 α -N(C₆H₁₃)-SO₂- β
 α -N(C₂H₄OH)-SO₂- β
 α -N(CH₂COOH)-SO₂- β
 α -N(CH₂C₆H₅)-SO₂- β
 α -N-[CH(CH₂OH)₂]-SO₂- β or
 α -N-[CH(CH₂OH)CH(CH₂OH)]-SO₂- β ,

in which α is the binding site to the complexing agent or metal complex K, and β is the binding site to the fluorine radical.

59. **(Previously Presented)** A method according to claim 57, wherein the compound of formula I, is a compound in which n in formula -C_nF_{2n}E is a number from 4-15 and/or E is a fluorine atom.

60. **(Previously Presented)** A method according to claims 57, wherein the compound of formula I is:

Gadolinium complex of 10-[1-methyl-2-oxo-3-aza-5-oxo-{4-perfluorooctylsulfonyl-piperazin-1-yl}-pentyl]-1,4,7-tris(carboxymethyl)-1,4,7,10-tetraazacyclododecane,
 Gadolinium complex of 10-[2-hydroxy-4-aza-5-oxo-7-oxa-10,10,11,11,12,12,13,13,14,14,15,15,16,16,17,17-heptafluoroheptadecyl]-1,4,7-tris(carboxymethyl)-1,4,7,10-tetraazacyclododecane,
 Gadolinium complex of 10-[2-hydroxy-4-aza-5,9-dioxo-9-{4-perfluorooctyl}-piperazin-1-yl]-nonyl]-1,4,7-tris(carboxymethyl)-1,4,7,10-tetraazacyclododecane,

Gadolinium complex of 10-[2-hydroxy-4-aza-5-oxo-7-aza-7-(perfluorooctylsulfonyl)-nonyl]-1,4,7-tris(carboxymethyl)-1,4,7,10-tetraazacyclododecane,
 Gadolinium complex of 10-[2-hydroxy-4-oxa-1H,1H,2H,3H,3H,5H,5H,6H,6H-perfluorotetradecyl]-1,4,7-tris(carboxymethyl)-1,4,7,10-tetraazacyclododecane,
 Gadolinium complex of 10-[2-hydroxy-4-aza-5-oxo-7-oxa-10,10,11,11,12,12,13,13,14,14,15,15,-16,16,17,17,18,18,19,19-henicosafuoro-nonadecyl]-1,4,7-tris(carboxymethyl)-1,4,7,10-tetraazacyclododecane,
 Gadolinium complex of 10-[2-hydroxy-4-aza-5-oxo-11-aza-11-(perfluorooctylsulfonyl)-tridecyl]-1,4,7-tris(carboxymethyl)-1,4,7,10-tetraazacyclododecane, or
 Gadolinium complex of 10-[2-hydroxy-4-aza-5-oxo-7-aza-7-(perfluorooctylsulfonyl)-8-phenyl-octyl]-1,4,7-tris(carboxymethyl)-1,4,7,10-tetraaza-cyclododecane.

61. **(Previously Presented)** A method according to claim 51, wherein the perfluoroalkyl-containing metal complex, is a compound of formula Ia



in which

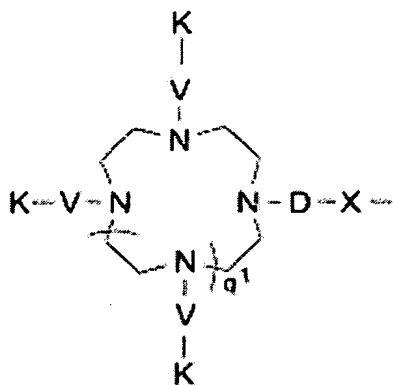
A is a group that contains 2 to 6 metal complexes, which are bonded directly or via a linker to a nitrogen atom of an annular skeleton chain,
 and

R^F is a perfluorinated, straight-chain or branched carbon chain with formula $-C_nF_{2n}E$, in which

E is a terminal fluorine, chlorine, bromine, iodine or hydrogen atom,

and n is a number from 4-30,

whereby A has the following structure:



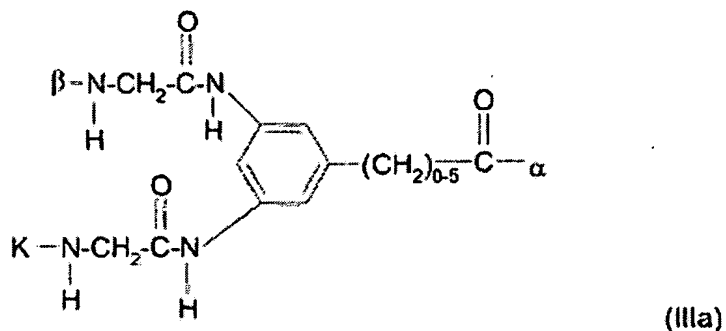
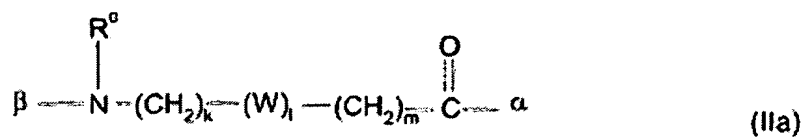
whereby

q^1 is 0, 1, 2 or 3,

K is a complexing agent or metal complex or a salts thereof with an organic and/or inorganic base or amino acid or amino acid amide,

X as the point of attachment to R^F , is a direct bond, a phenylene group or a C_1 - C_{10} alkylene chain, which optionally contains 1-15 oxygen atoms, 1-5 sulfur atoms, 1-10 carbonyl groups, 10-10 (NR^d) groups, 1-2 NR^dSO_2 groups, 1-10 $CONR^d$ groups, 1 piperidine group, 1-3 SO_2 groups and/or 1-2 phenylene groups or optionally is substituted by 1-3 radicals R^F , in which R^d is a hydrogen atom, a phenyl group, benzyl group or a C_1 - C_{15} alkyl group, which optionally contains 1-2 $NHCO$, 1-2 CO groups, 1-5 oxygen atoms and optionally is substituted by 1-5 hydroxy, 1-5 methoxy, 1-3 carboxy, or 1-3 R^F radicals,

V is a direct bond or a chain of formula IIa or IIIa:



in which

- R^e is a hydrogen atom, a phenyl group, a benzyl group or a $\text{C}_1\text{-C}_7$ alkyl group, which optionally is substituted with a carboxy group, a methoxy group or a hydroxy group,
- W is a direct bond, a polyglycol ether group with up to 5 glycol units, or a group of formula IVa



in which R^h is a $\text{C}_1\text{-C}_7$ carboxylic acid, a phenyl group, a benzyl group or a $-(\text{CH}_2)_{1-5}\text{-NH-K}$ group,

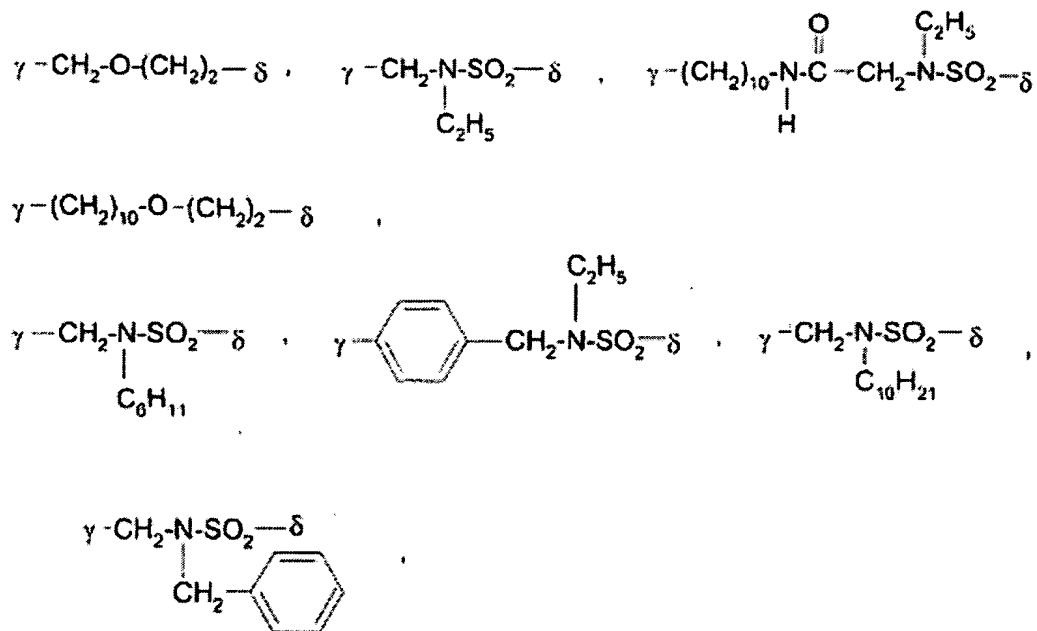
- α is the binding to the nitrogen atom of the skeleton chain, β is the binding to complexing agent or metal complex K,
- and in which variables k and m stand for natural numbers between 0 and 10, and l is 0 or 1

and whereby

D is a CO or SO_2 group.

62. **(Previously Presented)** A method according to claim 61, wherein the compound of formula Ia is a compound in which q^1 is the number 1.

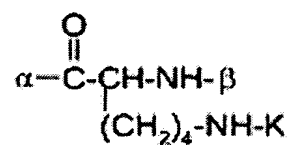
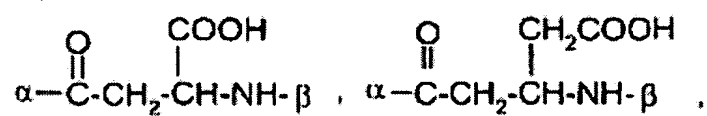
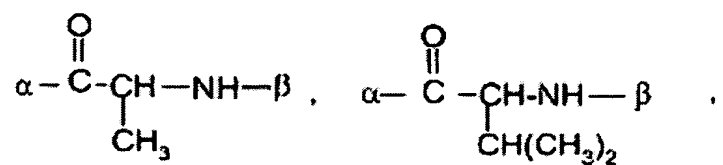
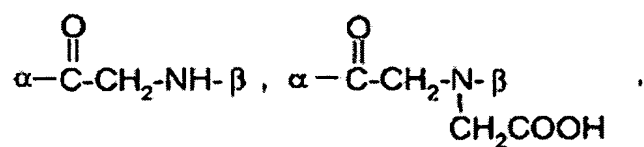
63. **(Previously Presented)** A method according to claim 61, wherein the compound of formula Ia is a compound in which X is an alkylene chain, which contains 1-10 -CH₂CH₂O- groups or 1-5 -COCH₂NH- groups, a direct bond or one of the following structures



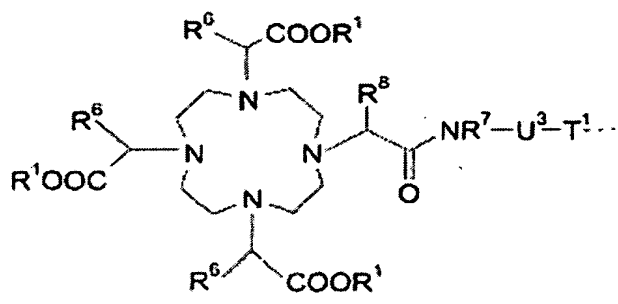
whereby

γ binds to D, and δ binds to R^F.

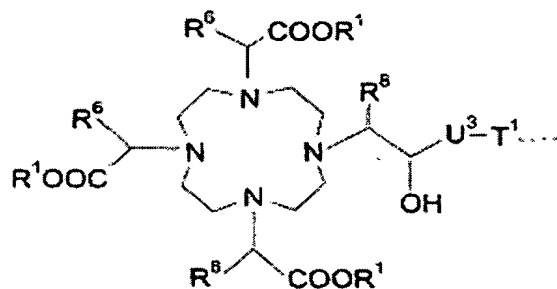
64. **(Previously Presented)** A method according to claim 61, wherein the compound of formula Ia, is a compound in which V is a group with one of the following structures



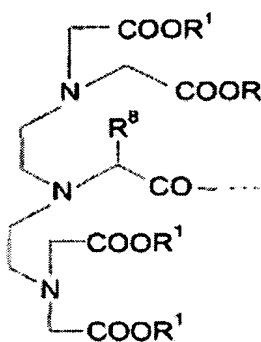
65. **(Previously Presented)** A method according to claim 61, wherein the compound of formula Ia, is a compound in which K is a complexing agent or complex of formula Va, VIa, VIIa or VIIIa,



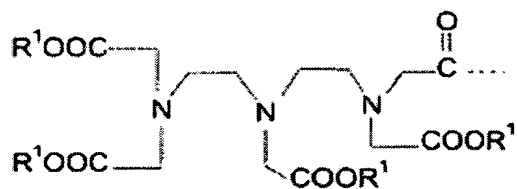
(Va)



(VIa)



(VIIa)



(VIIIa)

whereby

R^1 , independently of one another, are a hydrogen atom or a metal ion equivalent of the elements of atomic numbers 23-29, 42-46 or 58-70,
 R^8 is a hydrogen atom or a straight-chain, branched, saturated or unsaturated $\text{C}_1\text{--C}_{30}$ alkyl chain, which optionally is substituted by 1-5 hydroxy, 1-3

carboxy or 1 phenyl group(s) and/or optionally is interrupted by 1-10 oxygen atoms, 1 phenylene group or 1 phenylenoxy group,

R^6 are independently a hydrogen atom, a straight-chain or branched C_1 - C_7 alkyl radical, a phenyl radical or benzyl radical,

R^7 is a hydrogen atom, a methyl group or ethyl group, which optionally is substituted by a hydroxy group or carboxy group,

U^3 is a straight-chain, branched, saturated or unsaturated C_1 - C_{20} alkylene group optionally containing 1-5 imino groups, 1-3 phenylene groups, 1-3 phenylenoxy groups, 1-3 phenylenimino groups, 1-5 amide groups, 1-2 hydrazide groups, 1-5 carbonyl groups, 1-5 ethylenoxy groups, 1 urea group, 1 thiourea group, 1-2 carboxyalkylimino groups, 1-2 ester groups, 1-1-0 oxygen atoms, 1-5 sulfur atoms and/or 1-5 nitrogen atoms, and/or optionally substituted by 1-5 hydroxy groups, 1-2 mercapto groups, 1-5 oxo groups, 1-5 thioxo groups, 1-3 carboxy groups, 1-5 carboxyalkyl groups, 1-5 ester groups and/or 1-3 amino groups, whereby the optionally contained phenylene groups can be substituted by 1-2 carboxy groups, 1-2 sulfone groups or 1-2 hydroxy groups

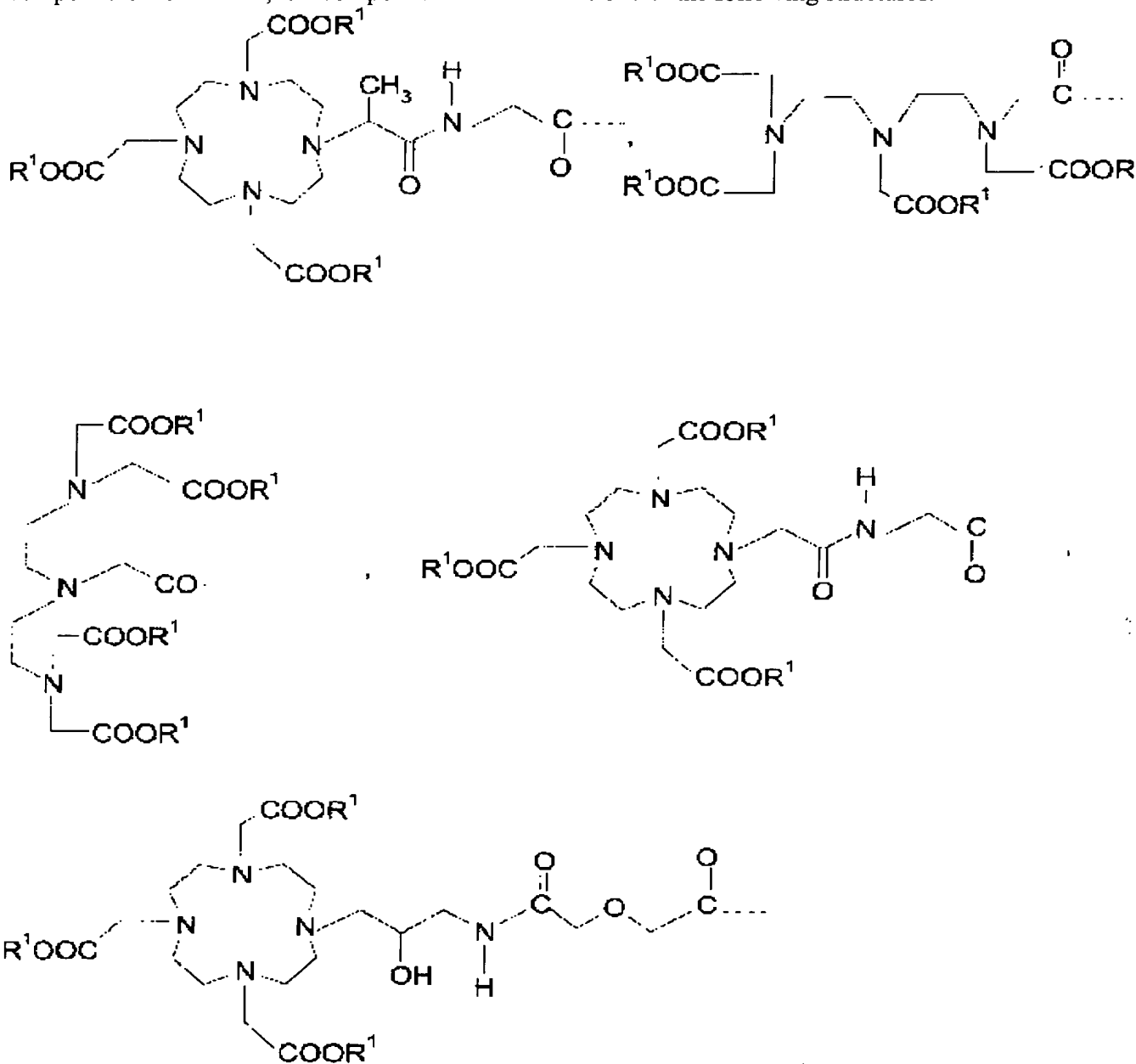
T^1 is a $-CO-\beta$, $-NHCO-\beta$ or $-NHCS-\beta$ group, whereby β is the binding site to V.

66. **(Previously Presented)** A method according to claim 65, wherein the C_1 - C_{20} alkylene chain that is U^3 contains the group $-CH_2NHCO-$, $-NHCOCH_2O-$, $-NHCOCH_2OC_6H_4-$, $-N(CH_2CO_2H)-$, $-CH_2OCH_2-$, $-NHCOCH_2C_6H_4-$, $-NHCSNHC_6H_4-$, $-CH_2OC_6H_4-$, or $-CH_2CH_2O-$ and/or is substituted by the group $-COOH$ and/or $-CH_2COOH$.

67. **(Previously Presented)** A method according to claim 65, wherein U^3 is a $-CH_2-$, $-CH_2CH_2-$, $-CH_2CH_2CH_2-$, $-C_6H_4-$, $-C_6H_{10}-$, $-CH_2C_6H_4-$, $-CH_2NHCOCH_2CH(CH_2CO_2H)-C_6H_4-$, $-CH_2NHCOCH_2OCH_2-$, or $-CH_2NHCOCH_2C_6H_4-$

group.

68. **(Previously Presented)** A method according to claim 61, wherein the compound of formula Ia, is a compound in which K has one of the following structures:



69. **(Previously Presented)** A method according to claim 61 , wherein the compound of formula Ia, is a compound in which the perfluoroalkyl chain is R^F is $-C_6F_{13}$, $-C_8F_{17}$, $-C_{10}F_{21}$ or $-C_{12}F_{25}$.

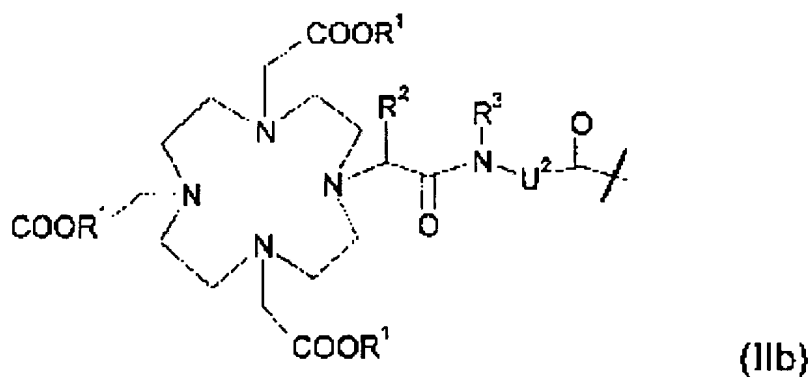
70. **(Previously Presented)** A method according to claim 61 , wherein the compound of formula Ia is a gadolinium complex of 1,4,7-tris{1,4,7-tris(N-(carboxylatomethyl)-10-[N-1-methyl-3,6-diaza-2,5,8-trioxooctane-1,8-diyl)]-1,4,7,10-tetraazacyclododecane, Gd complex}-10-[N-2H,2H,4H,4H,5H,5H-3-oxa-perfluorotridecanoyl]-1,4,7,10-tetraazacyclododecane .

71. **(Previously Presented)** A method according to claim 51 , wherein the perfluoroalkyl-containing metal complex, is a compound of formula Ib



in which

K is a complexing agent or a metal complex of formula IIb



whereby

R^1 is a hydrogen atom or a metal ion equivalent of atomic numbers 23-

29, 42-46 or 58-70,

R^2 and R^3 are independently a hydrogen atom, a C_1 - C_7 alkyl group, a benzyl group, a phenyl group, $-CH_2OH$ or $-CH_2-OCH_3$,

U^2 is radical L^1 , whereby L^1 and U^2 , independently of one another, can be the same or different,

A^1 is a hydrogen atom, a straight-chain or branched C_1 - C_{30} alkyl group, which optionally is interrupted by 1-15 oxygen atoms, and/or optionally is substituted with 1-10 hydroxy groups, 1-2 $COOH$ groups, a phenyl group, a benzyl group and/or 1-5 $-OR^9$ groups, with R^9 having the meaning of a hydrogen atom or a C_1 - C_7 alkyl radical, or $-L^1-R^F$,

L^1 is a straight-chain or branched C_1 - C_{30} alkylene group, which optionally is interrupted by 1-10 oxygen atoms, 1-5 $-NH-CO$ groups, 1-5 $-CO-NH$ groups, by a phenylene group optionally substituted by a $COOH$ - group, 1-3 sulfur atoms, 1-2 $-N(B^1)-SO_2$ groups and/or 1-2 $-SO_2-N(B^1)$ -groups with B^1 in the meaning of A^1 , an $NHCO$ group, a $CONH$ group, an $N(B^1)-SO_2$ group or an $-SO_2-N(B^1)$ group and/or optionally is substituted with radical R^F , and

R^F is a straight-chain or branched perfluorinated alkyl radical of formula $C_nF_{2n}E$, whereby n is number 4-30, and

E is a terminal fluorine atom, chlorine atom, bromine atom, iodine atom or a hydrogen atom,

and optionally present acid groups optionally can be present as salts of organic and/or inorganic bases or amino acids or amino acid amides.

72. (Previously Presented) A method according to claim 71, wherein the compound of formula Ib, is a compound in which R^2 , R^3 and R^9 , independently of one another, mean hydrogen or a C_1 - C_4 alkyl group.

73. (Previously Presented) A method according to claim 71, wherein the

compound of formula Ib, is a compound in which A¹ is hydrogen, a C₁-C₅ alkyl radical, or the radicals

C₂H₄-O-CH₃, C₃H₆-O-CH₃,
 C₂H₄-O-(C₂H₄-O)_t-C₂H₄-OH,
 C₂H₄-O-(C₂H₄-O)_t-C₂H₄-OCH₃, C₂H₄OH,
 C₃H₆OH, C₄H₈OH, C₅H₁₀OH, C₆H₁₂OH, C₇H₁₄OH,
 CH(OH)CH₂OH,
 CH(OH)CH(OH)CH₂OH, CH₂[CH(OH)]_u¹CH₂OH,
 CH[CH₂(OH)]CH(OH)CH₂OH,
 C₂H₄CH(OH)CH₂OH,
 (CH₂)_sCOOH,
 C₂H₄-O-(C₂H₄-O)_t-CH₂COOH , or
 C₂H₄-O-(C₂H₄-O)_t-C₂H₄-C_nF_{2n}E

whereby

s is integers 1 to 15,

t is integers 0 to 13,

u¹ is integers 1 to 10,

n is integers 4 to 20, and

E is hydrogen, fluorine, chlorine, bromine or iodine atoms, and optionally, their

branched isomers.

74. (Previously Presented) A method according to claim 71, wherein the compound of formula Ib, is a compound in which A¹ is hydrogen, C₁-C₁₀ alkyl,
 C₂H₄-O-CH₃, C₃H₆-O-CH₃,
 C₂H₄-O-(C₂H₄-O)_x-C₂H₄-OH, C₂H₄-O-(C₂H₄-O)_x-C₂H₄-OCH₃,
 C₂H₄OH, C₃H₆OH,

$\text{CH}_2[\text{CH}(\text{OH})]_y\text{CH}_2\text{OH}$,
 $\text{CH}[\text{CH}_2(\text{OH})]\text{CH}(\text{OH})\text{CH}_2\text{OH}$,
 $(\text{CH}_2)_w\text{COOH}$,
 $\text{C}_2\text{H}_4\text{-O-(C}_2\text{H}_4\text{-O)}_x\text{-CH}_2\text{COOH}$ or
 $\text{C}_2\text{H}_4\text{-O-(C}_2\text{H}_4\text{-O)}_x\text{-C}_2\text{H}_4\text{-C}_n\text{F}_{2n}\text{E}$,

whereby

x is integers 0 to 5,

y is integers 1 to 6,

w is integers 1 to 10,

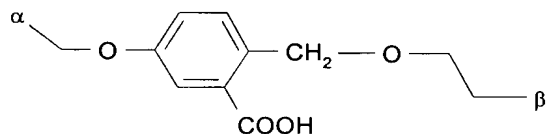
n is integers 4 to 15, and

E is a fluorine atom, and, optionally, their branched isomers.

75. **(Previously Presented)** A method according to claim 71, wherein the compound of formula Ib, is a compound in which L^1 is

$\alpha\text{-(CH}_2)_8\text{-}\beta$
 $\alpha\text{-CH}_2\text{-CH}_2\text{-(O-CH}_2\text{-CH}_2\text{)}_y\text{-}\beta$
 $\alpha\text{-CH}_2\text{-(O-CH}_2\text{-CH}_2\text{)}_y\text{-}\beta$,
 $\alpha\text{-CH}_2\text{-NH-CO-}\beta$
 $\alpha\text{-CH}_2\text{-CH}_2\text{-NH-SO}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-NH-CO-CH}_2\text{-N(CH}_2\text{COOH)-SO}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-NH-CO-CH}_2\text{-N(C}_2\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-NH-CO-CH}_2\text{-N(C}_{10}\text{H}_{21}\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-NH-CO-CH}_2\text{-N(C}_6\text{H}_{13}\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-NH-CO-(CH}_2)_{10}\text{-N(C}_2\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-NH-CO-CH}_2\text{-N(-CH}_2\text{-C}_6\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-NH-CO-CH}_2\text{-N(-CH}_2\text{-CH}_2\text{-OH)SO}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-NHCO-(CH}_2)_{10}\text{-S-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{NHCOCH}_2\text{-O-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-CH}_2\text{NHCOCH}_2\text{-O-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-(CH}_2\text{-CH}_2\text{-O)}_t\text{-(CH}_2)_3\text{NHCO-CH}_2\text{-O-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{NHCO(CH}_2)_{10}\text{-O-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{CH}_2\text{NHCO(CH}_2)_{10}\text{-O-CH}_2\text{CH}_2\text{-}\beta$

$\alpha\text{-CH}_2\text{-C}_6\text{H}_4\text{-O-CH}_2\text{CH}_2\text{-}\beta$ whereby the phenylene group 1,4 or 1,3 is linked
 $\alpha\text{-CH}_2\text{-O-CH}_2\text{-C(CH}_2\text{-OCH}_2\text{CH}_2\text{-C}_6\text{F}_{13})_2\text{-CH}_2\text{-OCH}_2\text{-CH}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-NHCOCH}_2\text{CH}_2\text{CON-CH}_2\text{CH}_2\text{NHCOCH}_2\text{N(C}_2\text{H}_5\text{)SO}_2\text{C}_8\text{F}_{17}\beta$
 $\alpha\text{-CH}_2\text{-CH}_2\text{NHCOCH}_2\text{N(C}_2\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-O-CH}_2\text{-CH(OC}_{10}\text{H}_{21}\text{)-CH}_2\text{-O-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-(CH}_2\text{NHCO)}_4\text{-CH}_2\text{O-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-(CH}_2\text{NHCO)}_3\text{-CH}_2\text{O-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-OCH}_2\text{C(CH}_2\text{OH)}_2\text{-CH}_2\text{-O-CH}_2\text{CH}_2\text{-}\beta$



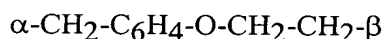
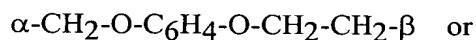
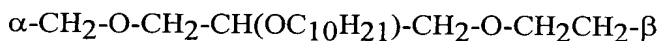
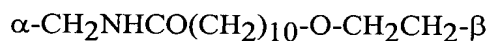
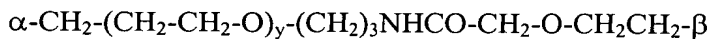
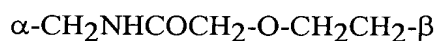
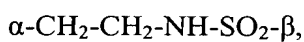
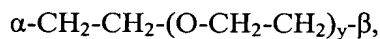
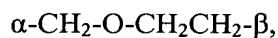
$\alpha\text{-CH}_2\text{NHCOCH}_2\text{N(C}_6\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-NHCO-CH}_2\text{-CH}_2\text{-}\beta$
 $\alpha\text{-NHCO-CH}_2\text{-O-CH}_2\text{CH}_2\text{-}\beta$
 $\alpha\text{-NH-CO-}\beta$
 $\alpha\text{-NH-CO-CH}_2\text{-N(CH}_2\text{COOH)-SO}_2\text{-}\beta$
 $\alpha\text{-NH-CO-CH}_2\text{-N(C}_2\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-NH-CO-CH}_2\text{-N(C}_{10}\text{H}_{21}\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-NH-CO-CH}_2\text{-N(C}_6\text{H}_{13}\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-NH-CO-(CH}_2\text{)}_{10}\text{-N(C}_2\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-NH-CO-CH}_2\text{-N(-CH}_2\text{-C}_6\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-NH-CO-CH}_2\text{-N(-CH}_2\text{-CH}_2\text{-OH)SO}_2\text{-}\beta$
 $\alpha\text{-NH-CO-CH}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-O-C}_6\text{H}_4\text{-O-CH}_2\text{-CH}_2\text{-}\beta$
 $\alpha\text{-CH}_2\text{-C}_6\text{H}_4\text{-O-CH}_2\text{-CH}_2\text{-}\beta$
 $\alpha\text{-N(C}_2\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-N(C}_6\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-N(C}_{10}\text{H}_{21}\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-N(C}_6\text{H}_{13}\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-N(C}_2\text{H}_4\text{OH)-SO}_2\text{-}\beta$
 $\alpha\text{-N(CH}_2\text{COOH)-SO}_2\text{-}\beta$
 $\alpha\text{-N(CH}_2\text{C}_6\text{H}_5\text{)-SO}_2\text{-}\beta$
 $\alpha\text{-N-[CH(CH}_2\text{OH)}_2\text{]-SO}_2\text{-}\beta$ or
 $\alpha\text{-N-[CH(CH}_2\text{OH)CH(OH)(CH}_2\text{OH)]-SO}_2\text{-}\beta$

whereby

s is integers 1 to 15 and

y is integers 1 to 6.

76. **(Previously Presented)** A method according to claim 71, wherein the compound of formula Ib, is a compound in which L^1 is



whereby

y is an interger from 1 to 6.

77. **(Previously Presented)** A method according to claim 71, wherein the compound of formula Ib, is a compound in which R^F is a straight-chain or branched perfluorinated alkyl radical of formula $C_nF_{2n}E$, whereby n is a number from 4 to 15 and E stands for a terminal fluorine atom.

78. **(Previously Presented)** A method according to claim 71 , wherein the compound of formula Ib is a :

1,4,7-Tris(carboxylatomethyl)-10-(3-aza-4-oxo-hexan-5-yl)-acid-(2,3-dihydroxypropyl)-N-(1H,1H,2H,2H,4H,4H,5H,5H-3-oxa)-perfluorotridecyl]-amide]-1,4,7,10-tetraazacyclododecane, gadolinium complex,

1,4,7-Tris(carboxylatomethyl)-10-[(3-aza-4-oxo-hexan-5-yl)acid-N-(3,6,9,12,15-pentaoxa)-hexadecyl)-(1H,1H,2H,2H,4H,4H,5H,5H-3-oxa)-perfluorotridecyl]-amide}-1,4,7,10-tetraazacyclododecane, gadolinium complex,

1,4,7-Tris(carboxylatomethyl)-10-[(3-aza-4-oxo-hexan-5-yl)-acid-N-5-hydroxy-3-oxa-pentyl)-N-(1H,1H,2H,2H,4H,4H,5H,5H-3-oxa)-perfluorotridecyl]-amide}-1,4,7,10-tetraazacyclododecane, gadolinium complex,

1,4,7-Tris(carboxylatomethyl)-10-[(3-aza-4-oxo-hexan-5-yl)-acid-[N-3,6,9,15-tetraoxa-12-aza-15-oxo-C₁₇-C₂₆-hepta-decafluor)hexacosyl]-amide}-1,4,7,10-tetraazacyclododecane, gadolinium complex, or

1,4,7-Tris(carboxylatomethyl)-10-[(3-aza-4-oxo-hexan-5-yl)-acid-N-(2-methoxyethyl)-N-(1H,1H,2H,2H,4H,4H,5H,5H-3-oxa)-perfluorotridecyl]-amide}-1,4,7,10-tetraazacyclododecane, gadolinium complex.

79. **(Previously Presented)** A method according to claim 57, wherein the perfluoroalkyl-containing metal complex is in a galenical formulation that contains a paramagnetic, perfluoroalkyl-containing metal complex of formula I, and a diamagnetic perfluoroalkyl-containing substance, optionally dissolved in an aqueous solvent, wherein the diamagnetic perfluoroalkyl-containing substance is a compound of formula XX



in which R^F is a straight-chain or branched perfluoroalkyl radical with 4 to 30 carbon atoms, L^2 is a linker and B^2 is a hydrophilic group.

80. **(Previously Presented)** A method according to claim 79, wherein linker L^2 is a direct bond, an $-SO_2$ group, or a straight-chain or branched carbon chain with 1 to 20 carbon atoms, which can be substituted with one or more $-OH$, $-COO$, $-SO_3$ groups and/or optionally contains one or more $-O-$, $-S-$, $-CO-$, $-CONH-$, $-NHCO-$, $-CONR^9-$, $-NR^9CO-$, $-SO_2-$, $-PO_4-$, $-NH-$ or $-NR^9$ groups, an aryl ring or a piperazine, whereby R^9 is a C_1 to C_{20} alkyl radical, which in turn can contain one or more O atoms, and/or can be substituted with $-COO-$ or SO_3 groups.

81. **(Previously Presented)** A method according to claim 79, wherein hydrophilic group B^2 is a mono- or disaccharide, with one or more adjacent $-COO^-$ or $-SO_3$ groups, a dicarboxylic acid, an isophthalic acid, a picolinic acid, a benzenesulfonic acid, a tetrahydropyrandicarboxylic acid, a 2,6-pyridinedicarboxylic acid, a quaternary ammonium ion, an aminopolycarboxylic acid, an aminodipolyethylene glycolsulfonic acid, an aminopolyethylene glycol group, an $SO_2-(CH_2)_2-OH$ group, a polyhydroxyalkyl chain with at least two hydroxyl groups or one or more polyethylene glycol chains with at least two glycol units, whereby the polyethylene glycol chains are terminated by an $-OH$ or $-OCH_3$ group.

82. **(Previously presented)** A method according to claim 55, wherein the metal complex has a hydrodynamic micelle diameter of > 4 nm.

83. **(Previously presented)** A method according to claim 56, wherein the metal complex has a proton relaxivity in plasma of > 15 l/mmol's.

84. **(Previously presented)** A method according to claim 61, wherein the perfluoroalkyl-containing metal complex is in a galenical formulation that contains a

paramagnetic, perfluoroalkyl-containing metal complex of formula Ia and diamagnetic perfluoroalkyl-containing substance, optionally dissolved in an aqueous solvent.

85. **(Previously presented)** A method according to claim 71, wherein the perfluoroalkyl-containing metal complex is in a galenical formulations that contains a paramagnetic, perfluoroalkyl-containing metal complex of formula Ib, and a diamagnetic perfluoroalkyl-containing substance, optionally dissolved in an aqueous solvent.

86. **(Currently amended)** A method according to claim 51, wherein plaque in which contrast agent is uptaken is visualized.

87. **(New)** A method according to claim 51, wherein necroses and tumors in which contrast agent is uptaken are independently and simultaneously visualized.